

2010 Annual Survey of Public-Employee Retirement Systems

Systems Methodology

The U.S. Census Bureau sponsors and conducts this Annual Survey of Public-Employee Retirement Systems as authorized by Title 13, United States Code.

The survey measures revenues, expenditures, financial assets, and membership information for public-employee retirement systems classified as defined benefit plans. Data are shown for individual retirement systems as well as at the national, state, and local government level. The survey yields a series of tables and files that provide users with comprehensive statistical information about the financial activity and membership of state and local government employee retirement systems.

Population of Interest

The population of interest for this survey includes public employee retirement systems administered by state and local governments throughout the nation. Retirement systems were only included if they met the following two criteria: (1) they were sponsored by a recognized unit of government as defined by the Census Bureau and (2) their membership was comprised of public employees compensated with public funds. These retirement systems consist of defined benefit plans – not defined contribution or post-employment healthcare plans. In years ending in ‘2’ and ‘7’ the entire universe is canvassed as part of the Census of Governments. In intervening years, a sample of the population of interest is surveyed.

Content of the Survey

A retirement system is a pension plan in which investments, contributions, and benefits are administered as a separate entity independent of the parent government general fund. Assets are accumulated and benefits paid under a particular set of actuarial assumptions, including employee age, compensation, and service credits. They include single employer systems, in which one government is the sole sponsor of the pension plan, as well as multiple employer systems, where two or more governments maintain membership on behalf of their employees.

For both the Census of Governments and the annual survey, the detail of the data is equivalent, encompassing the entire range of financial activity for government employee retirement systems – benefits paid, government contributions, employee contributions, and total holdings and investments. Total holdings and investments data include securities and other assets, such as cash and short-term investments, corporate bonds and stocks, and mortgages held directly.

The forms listed below are used to collect the data. The variables collected on these forms are explained in detail in the [2006 Government Finance and Employment Classification Manual](#).

Form Number Survey Name

F11 FY2010 Locally-Administered Employee Retirement Systems

F12 FY2010 State-Administered Employee Retirement Systems

Data Collection

Data collected for the annual sample survey of Public-Employee Retirement Systems are a matter of public record and are not confidential, as authorized by Title 13, United States Code, Section 9. Data for this survey were collected using the F-11 and F-12 forms listed in the Content of the Survey section above.

Data in these files are based on information obtained in the Annual Survey of Public-Employee Retirement Systems. Forms were mailed to the 222 state government employee retirement systems and 1576 local government employee retirement systems sampled from the 2007 public employee retirement universe. Staff contacted nonrespondents through a follow-up mail-out and by way of follow-up telephone calls. When a system returned its Comprehensive Annual Financial Report (CAFR) instead of completing the form, Census Bureau staff compiled the data using the report. Staff also used CAFRs available on the Internet to compile data for nonrespondents. All respondents had the option of returning their survey form or reporting their data on the Census Bureau's Internet collection instrument. Data were submitted electronically for 29.3 percent of the state and local retirement respondents in 2010.

The data collection schedule used for the 2010 Annual Survey of Public-Employee Retirement Systems follows:

Initial mail-out	April 2011
Follow-up mail-out	July 2011

Sample Design

The fiscal year (FY) 2010 sample was selected in 2010 from the 2007 Census of Governments: Finance Component with birth, death, and merger updates from 2007 to 2009. In FY 2004, the sample became a probability sample and was designed to produce estimates for local retirement systems as well as state and local retirement systems with a coefficient of variation of 3 percent or less for the following categories: receipts by source, payments, financial holdings, membership, and benefit payments. For this sample, three data items of interest helped determine the initial sample sizes: total earnings on investments, total benefits paid and withdrawals, and total holdings and investments. Units satisfying the following criteria were automatically included in the sample with a probability of one. These units represent themselves only and are called certainty units:

- All state government employee retirement systems
- Systems with total holdings and investments greater than \$50 million
- Systems with total earnings on investments greater than \$8 million
- Systems with total benefits paid and withdrawals greater than \$15 million
- Systems in a state that had fewer than 10 local government employee retirement systems with a probability not equal to one

Additional units were added with certainty when needed to satisfy coefficient of variation requirements. After determining the initial sample size, non-certainty governments were selected for the sample based on a probability proportional to its size, which was based on the variable total holdings and investments. Prior to selecting the sample, the file was ordered by state and within state by probability of selection of each unit as described above.

Weighting

The weight for each unit in the sample is the inverse of the probability of that unit being selected for the sample. For example, for units that were included in the sample with a probability of .02, the weight is $(1/.02)$ or 50. For units that were included in the sample with a probability of 1, the weight is 1.

Sample Size

The fiscal year (FY) 2010 sample size is 1,798 units, of which 1636 had a probability of selection equal to one. Births were added to the sample with a weight of one; disincorporated units were dropped from the sample.

Data Processing

Editing

Editing is a process that ensures survey data are accurate, complete, and consistent. Efforts are made at all phases of collection, processing, and tabulation to minimize errors. Although some edits are built into the Internet data collection instrument and the data entry programs, the majority of the edits are performed post collection. Edits consist primarily of two types: consistency edits and historical ratio edits of the current year's reported value to the prior year's value.

The consistency edits check the logical relationships of data items reported on the form. For example, if a value exists for the number of retirees receiving benefits because of age or length of service then there must be a value reported for the amount of benefits paid.

The historical ratio edits compare by item code the data reported for the current year with data reported for the prior year. If data fall out of acceptable tolerance levels, the item is flagged for review. For both types of edits, the edit results are reviewed by analysts and adjusted when needed. When analysts are unable to resolve or accept an edit failure, contact is made with the respondent to verify or correct the reported data.

Imputation

Not all respondents answer every item on the questionnaire. There are also questionnaires that are not returned despite efforts to gain a response. Imputation is the process of filling in missing or invalid data with reasonable values in order to have a complete data set for analytical purposes. For both state and local government employee retirement systems the imputations were based on either a prior year annual survey or the most recent Census of Governments. All but six missing variables (Z90, Z95, and four relatively new variables: Z13, Z14, Z15, and Z16) were imputed using one of the following methods: cell median or donor distribution of Z81, cell mean, or reported prior year or census year data that were multiplied by a growth factor. If the respondent does not write in anything in the "other" categories of Z90 and Z95, we impute those variables to be zero.

Estimation

Estimation is the process by which sample data are used to obtain the value of a variable of interest in a population. A simple unbiased estimate is calculated for each variable and can be obtained from the data by multiplying the unit value for a variable by its weight and summing all units in the nation.

Sampling Variability

The data that are provided come from a sample rather than a census of all possible units. The particular sample that was selected is one of a large number of possible samples of the same size and sample design that could have been selected. Each sample would have yielded different estimates. The estimated coefficients of variation, which are provided for each estimate, are an estimate of this sampling variability. In this tabulation, the coefficients of variation are expressed as percentages. The coefficient of variation is the standard error as a proportion of the magnitude of the estimate. In the tables, the coefficient of variation expresses the standard error as a percentage of the quantity being estimated.

The sample estimates and coefficients of variation provided in the files can be used to construct interval estimates with a specified probability that the interval includes the average of the estimates of the parameter derived from all possible samples of the same size and design. For example, if all possible samples were surveyed under essentially the same conditions and estimates calculated from each sample, then:

1. Approximately 68 percent of the intervals from one standard error (the product of the coefficient of variation and the point estimate) below the estimate to one standard error above the estimate would include the average value of all possible samples.
2. Approximately 90 percent of the intervals from 1.65 standard errors below the estimate to 1.65 standard errors above the estimate would include the average value of all possible samples.

Thus, for a particular sample, one can say with specified confidence that the average of all possible samples is included in the constructed interval.

Example of a confidence interval: The estimate of U.S. total cash and investment holdings in thousands of dollars for 2010 was 2,674,752,668 and the estimated coefficient of variation was 0.02 percent. The standard error is then 0.02 percent of 2,674,752,668 or 534,951.

An approximate 90-percent confidence interval can be constructed by first multiplying the standard error by 1.65 and then adding and subtracting that result from the estimate to obtain the upper and lower bounds.

- o Calculate the half-width of the confidence interval: $1.65 \times 534,951 = 882,669$.
- o Construct the confidence interval by adding the estimated half-width to $(2,674,752,668 + 882,669)$ and subtracting the same value from $(2,674,752,668 - 882,669)$ the estimate of total to get the confidence interval which ranges from 2,673,869,999 to 2,675,635,337.

State government employee retirement systems data are not subject to sampling error. Consequently, state and local government aggregates for individual states are statistically more reliable than the local government only estimates.

Nonsampling Error

Although every effort (as described in the Data Processing section) is made in all phases of collection, processing, and tabulation to minimize errors, the sample data are subject to nonsampling errors such as the inability to obtain data for every variable from all units in the sample, inaccuracies in classification, response errors, misinterpretation of questions, mistakes in keying and coding, and coverage errors. These same errors may be evident in census collections and may affect the Census of Governments data used to adjust the sample during the estimation phase and used in the imputation process.

Overall Response Rate

The overall response rate to the 2010 Annual Survey of Public-Employee Retirement Systems was 80.3 percent. The response rate was calculated as the number of responses received divided by the number of parent governments mailed minus the number of governments that were determined to be out of scope. Units reporting Total Holdings and Investments (Z81) are counted as respondents.

Total Quantity Response Rate

The Total Quantity Response Rate for Total Holdings and Investments (Z81) of the 2010 Annual Survey of Public-Employee Retirement Systems was 96.4 percent. This response rate was calculated as the weighted reported value of Total Holdings and Investments divided by the estimated total value of Total Holdings and Investments of those units mailed minus those governments that were determined to be out of scope.